SEQUENCE LISTING

<110> Luche, Ralf M.
Wei, Bo

<120> DSP-5 DUAL-SPECIFICITY PHOSPHATASE

<130> 200125.413C1

<140> US
<141> 2003-08-19

<160> 22

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1106
<212> DNA
<213> Homo sapiens

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gtggggccgc ggccgtcgcg gagccagatc acctgaggga agcgggcatc acggccgtgc 180
taacagtgga ctcggaggag cccagcttca aggcggggcc tggggtcgag gatctatggc 240
gcctcttcgt gccagcgctg gacaaacccg agacggacct actcagccat ctggaccggt 300
gcgtggcctt catcggtcag gcccgcgctg agggccgtgc ggtgttggtg cactgtcatg 360
caggagtcag tcgaagtgtg gccataataa ctgcttttct catgaagact gaccaacttc 420
cctttgaaaa agcctatgaa aagctccaga ttctcaaacc agaggctaag atgaatgagg 480
ggtttgagtg gcaactgaaa ttataccagg caatgggata cgaagtggat acctctagtg 540
caatttataa gcaatatcgt ttacaaaagg ttacagagaa gtatccagaa ttgcagaatt 600
tacctcaaga actctttgct gttgacccaa ctaccgtttc acaaggattg aaagatgagg 660
ttctctacaa gtgtagaaag tgcaggcgat cattatttcg aagttctagt attctggatc 720
accgtgaagg aagtggacct atagcctttg cccacaagag aatgacacca tcttccatgc 780
ttaccacagg gaggcaagct caatgtacat cttatttcat tgaacctgta cagtggatgg 840
aatctgcttt gttgggagtg atggatggac agcttctttg cccaaaatgc agtgccaagt 900
tgggttcctt caactggtat ggtgaacagt gctcttgtgg taggtggata acacctgctt 960
ttcaaataca taagaataga gtggatgaaa tgaaaatatt gcctgttttg ggatcacaaa 1020
caggaaaaat atgaacatga tattttatag cttgggaaga aacttgcaga tgatatgtgc 1080
tgcctttgct tcttatcatt catggc 1106

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<211> 1017
<212> DNA
<213> Homo sapiens

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gcgccagcag agtcagctgt gccgggcaga tgctggaagt gcagccagga ttgtatttcg 120
gtggggccgc ggccgtcgcg gagccagatc acctgaggga agcgggcatc acggccgtgc 180
taacagtgga ctcggaggag cccagcttca aggcggggcc tggggtcgag gatctatggc 240

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gcctcttcgt gccagcgctg gacaaacccg agacggacct actcagccat ctggaccggt     300
gcgtggcctt catcggtcag gcccgcgctg agggccgtgc ggtgttggtg cactgtcatg     360
caggagtcag tcgaagtgtg gccataataa ctgcttttct catgaagact gaccaacttc     420
cctttgaaaa agcctatgaa aagctccaga ttctcaaacc agaggctaag atgaatgagg     480
ggtttgagtg gcaactgaaa ttataccagg caatgggata cgaagtggat acctctagtg     540
caatttataa gcaatatcgt ttacaaaagg ttacagagaa gtatccagaa ttgcagaatt     600
tacctcaaga actctttgct gttgacccaa ctaccgtttc acaaggattg aaagatgagg     660
ttctctacaa gtgtagaaag tgcaggcgat cattatttcg aagttctagt attctggatc     720
accgtgaagg aagtggacct atagcctttg cccacaagag aatgacacca tcttccatgc     780
ttaccacagg gaggcaagct caatgtacat cttatttcat tgaacctgta cagtggatgg     840
aatctgcttt gttgggagtg atggatggac aggtgagaac acattttatt ttctacaatt     900
ttattttatg atctatattt tattccttct tgcattttaa gctctatttt aactagtgtt     960
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<210> 3
<211> 340
<212> PRT
<213> Homo sapiens

<400> 3
Met Leu Glu Ala Pro Gly Pro Ser Asp Gly Cys Glu Leu Ser Asn Pro
 1               5                  10                  15
Ser Ala Ser Arg Val Ser Cys Ala Gly Gln Met Leu Glu Val Gln Pro
            20                  25                  30
Gly Leu Tyr Phe Gly Gly Ala Ala Ala Val Ala Glu Pro Asp His Leu
        35                  40                  45
Arg Glu Ala Gly Ile Thr Ala Val Leu Thr Val Asp Ser Glu Glu Pro
    50                  55                  60
Ser Phe Lys Ala Gly Pro Gly Val Glu Asp Leu Trp Arg Leu Phe Val
65                  70                  75                  80
Pro Ala Leu Asp Lys Pro Glu Thr Asp Leu Leu Ser His Leu Asp Arg
                85                  90                  95
Cys Val Ala Phe Ile Gly Gln Ala Arg Ala Glu Gly Arg Ala Val Leu
            100                 105                 110
Val His Cys His Ala Gly Val Ser Arg Ser Val Ala Ile Ile Thr Ala
        115                 120                 125
Phe Leu Met Lys Thr Asp Gln Leu Pro Phe Glu Lys Ala Tyr Glu Lys
    130                 135                 140
Leu Gln Ile Leu Lys Pro Glu Ala Lys Met Asn Glu Gly Phe Glu Trp
145                 150                 155                 160
Gln Leu Lys Leu Tyr Gln Ala Met Gly Tyr Glu Val Asp Thr Ser Ser
                165                 170                 175
Ala Ile Tyr Lys Gln Tyr Arg Leu Gln Lys Val Thr Glu Lys Tyr Pro
            180                 185                 190
Glu Leu Gln Asn Leu Pro Gln Glu Leu Phe Ala Val Asp Pro Thr Thr
        195                 200                 205
Val Ser Gln Gly Leu Lys Asp Glu Val Leu Tyr Lys Cys Arg Lys Cys
    210                 215                 220
Arg Arg Ser Leu Phe Arg Ser Ser Ser Ile Leu Asp His Arg Glu Gly
225                 230                 235                 240
Ser Gly Pro Ile Ala Phe Ala His Lys Arg Met Thr Pro Ser Ser Met
                245                 250                 255
Leu Thr Thr Gly Arg Gln Ala Gln Cys Thr Ser Tyr Phe Ile Glu Pro
            260                 265                 270
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Val Gln Trp Met Glu Ser Ala Leu Leu Gly Val Met Asp Gly Gln Leu
        275                 280                 285
Leu Cys Pro Lys Cys Ser Ala Lys Leu Gly Ser Phe Asn Trp Tyr Gly
    290                 295                 300
Glu Gln Cys Ser Cys Gly Arg Trp Ile Thr Pro Ala Phe Gln Ile His
305                 310                 315                 320
Lys Asn Arg Val Asp Glu Met Lys Ile Leu Pro Val Leu Gly Ser Gln
                325                 330                 335
Thr Gly Lys Ile
            340
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<210> 4
<211> 299
<212> PRT
<213> Homo sapiens

<400> 4

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 1               5                  10                  15
Ser Ala Ser Arg Val Ser Cys Ala Gly Gln Met Leu Glu Val Gln Pro
            20                  25                  30
Gly Leu Tyr Phe Gly Gly Ala Ala Ala Val Ala Glu Pro Asp His Leu
        35                  40                  45
Arg Glu Ala Gly Ile Thr Ala Val Leu Thr Val Asp Ser Glu Glu Pro
    50                  55                  60
Ser Phe Lys Ala Gly Pro Gly Val Glu Asp Leu Trp Arg Leu Phe Val
65                  70                  75                  80
Pro Ala Leu Asp Lys Pro Glu Thr Asp Leu Leu Ser His Leu Asp Arg
                85                  90                  95
Cys Val Ala Phe Ile Gly Gln Ala Arg Ala Glu Gly Arg Ala Val Leu
            100                 105                 110
Val His Cys His Ala Gly Val Ser Arg Ser Val Ala Ile Ile Thr Ala
        115                 120                 125
Phe Leu Met Lys Thr Asp Gln Leu Pro Phe Glu Lys Ala Tyr Glu Lys
    130                 135                 140
Leu Gln Ile Leu Lys Pro Glu Ala Lys Met Asn Glu Gly Phe Glu Trp
145                 150                 155                 160
Gln Leu Lys Leu Tyr Gln Ala Met Gly Tyr Glu Val Asp Thr Ser Ser
                165                 170                 175
Ala Ile Tyr Lys Gln Tyr Arg Leu Gln Lys Val Thr Glu Lys Tyr Pro
            180                 185                 190
Glu Leu Gln Asn Leu Pro Gln Glu Leu Phe Ala Val Asp Pro Thr Thr
        195                 200                 205
Val Ser Gln Gly Leu Lys Asp Glu Val Leu Tyr Lys Cys Arg Lys Cys
    210                 215                 220
Arg Arg Ser Leu Phe Arg Ser Ser Ser Ile Leu Asp His Arg Glu Gly
225                 230                 235                 240
Ser Gly Pro Ile Ala Phe Ala His Lys Arg Met Thr Pro Ser Ser Met
                245                 250                 255
Leu Thr Thr Gly Arg Gln Ala Gln Cys Thr Ser Tyr Phe Ile Glu Pro
            260                 265                 270
Val Gln Trp Met Glu Ser Ala Leu Leu Gly Val Met Asp Gly Gln Val
        275                 280                 285
Arg Thr His Phe Ile Phe Tyr Asn Phe Ile Leu
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290 295

<210> 5
<211> 14
<212> PRT
<213> Homo sapiens

<400> 5
Val His Cys His Ala Gly Val Ser Arg Ser Val Ala Ile Ile
1 5 10

<210> 6
<211> 23
<212> PRT
<213> Homo sapiens

<400> 6
Gly Arg Val Leu Val His Cys Gln Ala Gly Ile Ser Arg Ser Gly Thr
1 5 10 15
Asn Ile Leu Ala Tyr Leu Met
20

<210> 7
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 7
actcaaaccc ctcattcatc ttagc 25

<210> 8
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 8
ccacacttcg actgactcct gc 22

<210> 9
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 9
caccgaaata caatcctggc tg 22

<210> 10
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 10
cagccaggat tgtatttcgg tg 22

<210> 11
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 11
aggattgtat ttcggtgggg c 21

<210> 12
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 12
tgaatgataa gaagcaaagg cagc 24

<210> 13
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 13
gtggcaactg aaattatacc aggc 24

<210> 14
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 14

gttaaaatag agcttaaaat gcaagaagg 29

<210> 15
<211> 170
<212> PRT
<213> Homo sapiens

<400> 15
Ser Asp Leu Asp Arg Asp Pro Asn Ser Ala Thr Asp Ser Asp Gly Ser
1 5 10 15
Pro Leu Ser Asn Ser Gln Pro Ser Phe Pro Val Glu Ile Leu Pro Phe
20 25 30
Leu Tyr Leu Gly Cys Ala Lys Asp Ser Thr Asn Leu Asp Val Leu Glu
35 40 45
Glu Phe Gly Ile Lys Tyr Ile Leu Asn Val Thr Pro Asn Leu Pro Asn
50 55 60
Leu Phe Glu Asn Ala Gly Glu Phe Lys Tyr Lys Gln Ile Pro Ile Ser
65 70 75 80
Asp His Trp Ser Gln Asn Leu Ser Gln Phe Phe Pro Glu Ala Ile Ser
85 90 95
Phe Ile Asp Glu Ala Arg Gly Lys Asn Cys Gly Val Leu Val His Cys
100 105 110
Leu Ala Gly Ile Ser Arg Ser Val Thr Val Thr Val Ala Tyr Leu Met
115 120 125
Gln Lys Leu Asn Leu Ser Met Asn Asp Ala Tyr Asp Ile Val Lys Met
130 135 140
Lys Lys Ser Asn Ile Ser Pro Asn Phe Asn Phe Met Gly Gln Leu Leu
145 150 155 160
Asp Phe Glu Arg Thr Leu Gly Leu Ser Ser
165 170

<210> 16
<211> 168
<212> PRT
<213> Homo sapiens

<400> 16
Asp Arg Glu Leu Pro Ser Ser Ala Thr Glu Ser Asp Gly Ser Pro Val
1 5 10 15
Pro Ser Ser Gln Pro Ala Phe Pro Val Gln Ile Leu Pro Tyr Leu Tyr
20 25 30
Leu Gly Cys Ala Lys Asp Ser Thr Asn Leu Asp Val Leu Gly Lys Tyr
35 40 45
Gly Ile Lys Tyr Ile Leu Asn Val Thr Pro Asn Leu Pro Asn Ala Phe
50 55 60
Glu His Gly Gly Glu Phe Thr Tyr Lys Gln Ile Pro Ile Ser Asp His
65 70 75 80
Trp Ser Gln Asn Leu Ser Gln Phe Phe Pro Glu Ala Ile Ser Phe Ile
85 90 95
Asp Glu Ala Arg Ser Lys Lys Cys Gly Val Leu Val His Cys Leu Ala
100 105 110
Gly Ile Ser Arg Ser Val Thr Val Thr Val Ala Tyr Leu Met Gln Lys
115 120 125
Met Asn Leu Ser Leu Asn Asp Ala Tyr Asp Phe Val Lys Arg Lys Lys

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    130                 135                 140
Ser Asn Ile Ser Pro Asn Phe Asn Phe Met Gly Gln Leu Leu Asp Phe
145                 150                 155                 160
Glu Arg Thr Leu Gly Leu Ser Ser
                165
```

<210> 17
<211> 170
<212> PRT
<213> Homo sapiens

<400> 17

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Gly Leu Cys Glu Gly Lys Pro Ala Ala Leu Leu Pro Met Ser Leu Ser
 1               5                  10                  15
Gln Pro Cys Leu Pro Val Pro Ser Val Gly Leu Thr Arg Ile Leu Pro
            20                  25                  30
His Leu Tyr Leu Gly Ser Gln Lys Asp Val Leu Asn Lys Asp Leu Met
        35                  40                  45
Thr Gln Asn Gly Ile Ser Tyr Val Leu Asn Ala Ser Asn Ser Cys Pro
    50                  55                  60
Lys Pro Asp Phe Ile Cys Glu Ser Arg Phe Met Arg Val Pro Ile Asn
65                  70                  75                  80
Asp Asn Tyr Cys Glu Lys Leu Leu Pro Trp Leu Asp Lys Ser Ile Glu
                85                  90                  95
Phe Ile Asp Lys Ala Lys Leu Ser Ser Cys Gln Val Ile Val His Cys
            100                 105                 110
Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile Ala Tyr Ile Met
        115                 120                 125
Lys Thr Met Gly Met Ser Ser Asp Asp Ala Tyr Arg Phe Val Lys Asp
    130                 135                 140
Arg Arg Pro Ser Ile Ser Pro Asn Phe Asn Phe Leu Gly Gln Leu Leu
145                 150                 155                 160
Glu Tyr Glu Arg Thr Leu Lys Leu Leu Ala
                165                 170
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<210> 18
<211> 168
<212> PRT
<213> Homo sapiens

<400> 18

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Pro Ala Gln Ala Leu Pro Pro Ala Gly Ala Glu Asn Ser Asn Ser Asp
 1               5                  10                  15
Pro Arg Val Pro Ile Tyr Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
            20                  25                  30
Tyr Leu Tyr Leu Gly Ser Cys Asn His Ser Ser Asp Leu Gln Gly Leu
        35                  40                  45
Gln Ala Cys Gly Ile Thr Ala Val Leu Asn Val Ser Ala Ser Cys Pro
    50                  55                  60
Asn His Phe Glu Gly Leu Phe His Tyr Lys Ser Ile Pro Val Glu Asp
65                  70                  75                  80
Asn Gln Met Val Glu Ile Ser Ala Trp Phe Gln Glu Ala Ile Ser Phe
                85                  90                  95
Ile Asp Ser Val Lys Asn Ser Gly Gly Arg Val Leu Val His Cys Gln
```

```
            100                 105                 110
Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu Ile Gln
        115                 120                 125
Ser His Arg Val Arg Leu Asp Glu Ala Phe Asp Phe Val Lys Gln Arg
    130                 135                 140
Arg Gly Val Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu Leu Gln
145                 150                 155                 160
Leu Glu Thr Gln Val Leu Cys His
                165
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<210> 19
<211> 169
<212> PRT
<213> Homo sapiens

<400> 19

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Pro Leu Ser Thr Ser Val Pro Asp Ser Ala Glu Ser Gly Cys Ser Ser
 1               5                  10                  15
Cys Ser Thr Pro Leu Tyr Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
            20                  25                  30
Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Arg Lys Asp Met Leu
        35                  40                  45
Asp Ala Leu Gly Ile Thr Ala Leu Ile Asn Val Ser Ala Asn Cys Pro
    50                  55                  60
Asn His Phe Glu Gly His Tyr Gln Tyr Lys Ser Ile Pro Val Glu Asp
65                  70                  75                  80
Asn His Lys Ala Asp Ile Ser Ser Trp Phe Asn Glu Ala Ile Asp Phe
                85                  90                  95
Ile Asp Ser Ile Lys Asn Ala Gly Gly Arg Val Phe Val His Cys Gln
            100                 105                 110
Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu Met Arg
        115                 120                 125
Thr Asn Arg Val Lys Leu Asp Glu Ala Phe Glu Phe Val Lys Gln Arg
    130                 135                 140
Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu Leu Gln
145                 150                 155                 160
Phe Glu Ser Gln Val Leu Ala Pro His
                165
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<210> 20
<211> 169
<212> PRT
<213> Homo sapiens

<400> 20

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Pro Val Pro Pro Ser Ala Thr Glu Pro Leu Asp Leu Gly Cys Ser Ser
 1               5                  10                  15
Cys Gly Thr Pro Leu His Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
            20                  25                  30
Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ala Arg Arg Asp Met Leu
        35                  40                  45
Asp Ala Leu Gly Ile Thr Ala Leu Leu Asn Val Ser Ser Asp Cys Pro
    50                  55                  60
Asn His Phe Glu Gly His Tyr Gln Tyr Lys Cys Ile Pro Val Glu Asp
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65 70 75 80
Asn His Lys Ala Asp Ile Ser Ser Trp Phe Met Glu Ala Ile Glu Tyr
85 90 95
Ile Asp Ala Val Lys Asp Cys Arg Gly Arg Val Leu Val His Cys Gln
100 105 110
Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu Met Met
115 120 125
Lys Lys Arg Val Arg Leu Glu Glu Ala Phe Glu Phe Val Lys Gln Arg
130 135 140
Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu Leu Gln
145 150 155 160
Phe Glu Ser Gln Val Leu Ala Thr Ser
165

<210> 21
<211> 171
<212> PRT
<213> Homo sapiens

<400> 21
Ser Glu Arg Ala Leu Ile Ser Gln Cys Gly Lys Pro Val Val Asn Val
1 5 10 15
Ser Tyr Arg Pro Ala Tyr Asp Gln Gly Gly Pro Val Glu Ile Leu Pro
20 25 30
Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Lys Cys Glu Phe Leu
35 40 45
Ala Asn Leu His Ile Thr Ala Leu Leu Asn Val Ser Arg Arg Thr Ser
50 55 60
Glu Ala Cys Met Thr His Leu His Tyr Lys Trp Ile Pro Val Glu Asp
65 70 75 80
Ser His Thr Ala Asp Ile Ser Ser His Phe Gln Glu Ala Ile Asp Phe
85 90 95
Ile Asp Cys Val Arg Glu Lys Gly Gly Lys Val Leu Val His Cys Glu
100 105 110
Ala Gly Ile Ser Arg Ser Pro Thr Ile Cys Met Ala Tyr Leu Met Lys
115 120 125
Thr Lys Gln Phe Arg Leu Lys Glu Ala Phe Asp Tyr Ile Lys Gln Arg
130 135 140
Arg Ser Met Val Ser Pro Asn Phe Gly Phe Met Gly Gln Leu Leu Gln
145 150 155 160
Tyr Glu Ser Glu Ile Leu Pro Ser Thr Pro Asn
165 170

<210> 22
<211> 174
<212> PRT
<213> Homo sapiens

<400> 22
Met Leu Glu Ala Pro Gly Pro Ser Asp Gly Cys Glu Leu Ser Asn Pro
1 5 10 15
Ser Ala Ser Arg Val Ser Cys Ala Gly Gln Met Leu Glu Val Gln Pro
20 25 30
Gly Leu Tyr Phe Gly Gly Ala Ala Ala Val Ala Glu Pro Asp His Leu

```
        35                  40                  45
Arg Glu Ala Gly Ile Thr Ala Val Leu Thr Val Asp Ser Glu Glu Pro
    50                  55                  60
Ser Phe Lys Ala Gly Pro Gly Val Glu Asp Leu Trp Arg Leu Phe Val
65                  70                  75                  80
Pro Ala Leu Asp Lys Pro Glu Thr Asp Leu Leu Ser His Leu Asp Arg
                85                  90                  95
Cys Val Ala Phe Ile Gly Gln Ala Arg Ala Glu Gly Arg Ser Val Leu
            100                 105                 110
Val His Cys His Ala Gly Val Ser Arg Ser Val Ala Ile Ile Thr Ala
        115                 120                 125
Phe Leu Met Lys Thr Asp Gln Leu Pro Phe Glu Lys Ala Tyr Glu Lys
    130                 135                 140
Leu Gln Ile Leu Lys Pro Glu Ala Lys Met Asn Glu Gly Phe Glu Trp
145                 150                 155                 160
Gln Leu Lys Leu Tyr Gln Ala Met Gly Tyr Glu Val Asp Thr
                165                 170
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